AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) A method of rendering a flattened view of a tubular body structure having a lumen defined by a wall, comprising:

providing a data set containing data representing a plurality of cross-sectional images of a tubular structure of the body taken along a longitudinal axis of the tubular body;

processing the data set to reconstruct a three-dimensional image of the tubular body;

identifying a central pathway through a lumen of the three-dimensional image;

selecting a starting point along the central pathway;

projecting a ray from the starting point to the wall, the direction of the ray corresponding to an angle of view;

calculating a voxel value at the location of the wall;

storing the voxel value in an image buffer;

shifting the angle of view by one degree in a selected direction, projecting another ray from the starting point to the wall, the direction of the ray corresponding to the shifted angle of view if the angle of view has not been shifted a total of 180 degrees from the initial starting point;

returning to the starting point if the angle of view has been shifted a total of 180 degrees;

shifting the angle of view by one degree in a direction opposite from the selected direction, projecting another ray from the starting point to the wall, the direction of the ray

corresponding to the shifted angle of view if the angle of view has not been shifted a total of 180 degrees from the initial starting point;

advancing the starting point along the longitudinal axis of the lumen by a selected value if the angle of view has been shifted a total of 180 degrees from the initial starting point;

~~storing data representing the flattened view in an image buffer~~;

displaying the flattened view of the image.

2. (Original) The method of claim 1, further comprising:

selecting a point along the central pathway;

processing the data at the selected point and rendering an image of a cross-section of the wall of the tubular structure at the selected point; and

displaying the image of the cross-section of the wall of the tubular structure.

3. (Canceled)

4. (Canceled)

5. (Previously presented) The method of claim 1, further comprising:

repeating the steps of projecting the ray and storing voxel values in an image buffer until the entire length of the lumen has been processed.

6. (Original) The method of claim 4, wherein the tubular structure is a colon.

7. (Amended) A method for generating a view of the tissue structures within a thickness dimension of a wall of a tubular structure of a body including tissue adjacent the exterior of the wall, comprising the steps of:

(a) providing a data set containing data representing a three-dimensional volume representing a tubular structure of the body taken along a longitudinal axis of the tubular body, the tubular body having a lumen defined by a wall;

(b) selecting a starting point along a central pathway disposed along the longitudinal axis of the tubular body;

(c) projecting a ray towards the wall a selected distance by stepping towards the wall along the ray from the starting point, the distance selected such that the ray steps into and through the thickness of the wall;

(d) calculating a voxel value at the location of each step of the ray;

(e) adding the voxel value to an image buffer;

(f) incrementing the angular projection of the ray one degree in a selected direction when the selected distance is reached ;

(g) ~~determining if the angular projection of the ray has been incremented 360 degrees since the starting point was selected~~ repeating steps (c) through (f) until the angular projection of the ray has been incremented a total of 180 degrees in the selected direction and then returning to the starting point;

(h) ~~projecting a ray having the incremented angulation toward the wall~~ repeating steps (c) through (f), where the selected direction is a direction opposite to the selected direction of step (f) until the angular projection of the ray has been incremented at total of 180 degrees in the opposite direction;

(i) ~~repeating steps (d) through (h) until the angular projection of the ray has been incremented 360 degrees;~~ advancing the starting point along the central pathway a selected distance; and

(j) repeating steps (c) through (i) until a desired section of the central pathway is imaged;

[[(j)]] (k) displaying a subsurface volume image representing tissue structure present within the thickness dimension of the wall.

8. (Original) The method of claim 7, wherein the tubular structure in a colon.

9. (Original) The method of claim 1, further comprising:

comparing the three-dimensional volume data set to a library of geometrical patterns representative of predetermined abnormalities;

identifying a structure contained in the three-dimensional volume data set as abnormal if the structure is determined to match at least one of the library of geometrical patterns within a predetermined tolerance.

10. (Original) The method of claim 7, further comprising:

comparing the three-dimensional volume data set to a library of geometrical patterns representative of predetermined abnormalities;

identifying a structure contained in the three-dimensional volume data set as abnormal if the structure is determined to match at least one of the library of geometrical patterns within a predetermined tolerance.

11. (Original) The method of claim 9, further comprising:

further processing the identified abnormal structure to determine if the identified structure is not abnormal.

12. (Original) The method of claim 10, further comprising:

further processing the identified abnormal structure to determine if the identified structure is not abnormal.

13. (Canceled)